The surrounding of the flexible layer may be a thin sheet of protection material 516, such as a thin plastic, that is used around the flexible layer edge (see FIGURE 9). The protection material protects the mold so that the mold is reusable. The protection material would not be necessary for a mold that is the exact size or smaller than the flexible layer or for a sacrificial mold.

In this method, the flexible layer's final curvature is determined by the curvature of the curved surface of the mold (not shown) and not directly by the shape of the backing plate. Therefore the curvature and the surface finish of the backing plate are not critical to the curvature and surface finish of the flexible layer. The curved surface of the mold can be convex or concave and toroidal, spherical, ellipsoid, or other optical surfaces, and hence the flexible layer can be curved to any of these geometries.

In one embodiment, the minimum thickness x of said adhesive layer is greater than or equal to 20 µm and the thickness y of the flexible layer is greater than or equal to 5 µm. The optical layer may be a crystal, and the adhesive layer an epoxy, wherein x is between 0.1 mm and 1 mm and y is between 10 µm and 50 µm.

Additional details regarding this optic can be found throughout U.S. Patent No. 6,285,506. --

In the Claims:

Cancel claims 7, 23 & 25-31 without prejudice.

Replace claims 6, 14, 22 & 41 as set forth below.

5 6. (Once Amended) An apparatus as recited in claim 1, further comprising one or more apertures for limiting a convergent angle onto the surface of the diffracted x-rays, wherein the convergent angle comprises the angle subtending the upper and lower extents of the diffracted x-rays.